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ABSTRACT

Important to the cost analysis process is prior consideration and precise description of the scope of the activity and the tasks to be included so that proper methodology can be applied and the data can be collected with consistency and accuracy. The preparatory steps involved in doing a cost study, particularly in the area of cataloging in a large research library, include the definition of the cataloging activity and its subdivision into categories of employee tasks; the determination of the summary cost measures which will be used--average unit cost, cost range, or man hours expended; and the specification of exactly what constitutes the unit of output. Cost analysis may provide significant information to the administrator making decisions about cataloging; but it may not be all the information he needs. (KB)

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COST ANALYSIS OF ORIGINAL CATALOGING

The purpose of a cost analysis is:

- to collect data in order to make chronological comparisons for reflecting trends in growth, decline or other symptoms; to identify problems or achievements;
- to collect uniform data comparable with other units or institutions for the same activity, providing that the basis for comparison is the same;
- to collect data specific to a particular function or program so as to make it comparable to that same activity performed through some other method or organization;
- to determine the cost-benefit of conversion to different methods;
- to collect data as a baseline by which the studied activity may be assessed under differing conditions;
- to perform cost analysis for measuring operations against a standard or goal to be achieved;
- to determine representative costs of present activities;
- to estimate future costs;
- and generally, for improvement of the quality of decision-making and efficiency of methods.

The methodology for conducting a cost analysis has by now become a standard and generally applicable set of formulas which are well-documented and described in the literature. Cost studies may differ in their depth of analysis and in the scope of activity and the number of units studied, and in the particular methodology selected, but the procedures are

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generally applicable. What is most important is the prior analysis and precise description of the scope of activity and tasks to be studied so that the proper methodology can be applied and the data can be collected with consistency and accuracy.

The effort involved in a cost study should be commensurate with anticipated results. While data may be potentially useful, the time and effort invested in gathering these figures can be considerable. If, for example, a study is made of manual cataloging in order to compare it against an automated system, then the scope and level of detail used should anticipate the likely impact of the automated system, so that like activities can be compared. At times, cost studies are so finely drawn in detail that the results can actually hinder comparison. Because use of an automated system can incorporate not only procedural change, but organizational and policy changes as well, a one-to-one detailed comparison with a previous manual operation is at times simply not possible, and the real cost difference or cost benefit may be truest at a bottom-line or gross level of comparison. On the other hand, the right level of detail can lead to a comparison which shows that under an automated system, less staff is needed to maintain the same level of productivity, and it shows specifically in what areas those staff savings are realized. Then one has the option of maintaining current staffing and increasing productivity or maintaining productivity and reorganizing those activities and staffing to effect real dollar savings.

What follows are some of the steps involved in the analysis prior to doing a cost study, particularly as it applies to the area of cataloging in a large research library. The optimal choice of methodology will itself

also be relative to purpose, budget, and available time. The choice of collecting data one way or another (i.e. the techniques and methodology - once it is decided what to collect) is ultimately determined by:

- the use to which the results will be put
- the time constraints on the study (a study can be done in ten weeks, or two years, or be continual)
- individual characteristics of the system to be studied
- the tolerance of staff to disruption of on-going work to collect and record data, and
- managerial judgement.

Continual cost monitoring from year to year, data such as might be included in an annual report, will most likely collect data only on a very few key elements such as total time, total output, and total cost for an entire period. Or a cost study may be quite intensive, of short duration, and very specific in detail for the purpose of evaluating a change in policy, organization, or procedure or for estimating what the likely cost impact of a change will be.

The general set of elements which are to be considered in a cost study will consist of the following:

- the scope of activity
- definition of tasks
- the time taken to perform a task
- a measurement of task output
- determination of staff or personnel costs

Each of these elements can have various definitions, and the cost which is attached to an activity is dependent on how these elements are defined.

To this basic set of elements - tasks, time, output, one can add other cost elements, such as supplies, equipment, support services directly related to production, and the space occupied by equipment and staff. It is very useful to know at the outset of a study whether these elements, such as space, will be of sufficient magnitude to make it worthwhile to include them in an overall study. It may be unlikely that any one will be a determining factor, unless other cost factors are very closely balanced. Depending on the breakdown and level of tasks to be studied, the cost of elements such as material, overhead, and space cannot usually be as specifically assigned. One can take a total cost of these and divide it evenly as a percentage increase to the cost of each task, or one can weight the percentage to the degree that a particular task makes use of supplies, equipment and other support services, or they can be separated out as separate cost items, which are then added as an element in total cost. This will depend on whether one intends to account for all the costs of an activity, or if the labor cost of an activity is of primary interest. A situation where it would be of great interest, and perhaps a determining factor, is one where a library contemplates changing from card catalogs to a book or microform catalog. Elements such as space, equipment, supplies, and other support services then become quite crucial.

A problem with many statistical type studies is not with the establishment of objective measurements, but rather in the manner in which they are interpreted. Thus, at the outset, very precise definitions of each element to be studied should be developed, agreed upon, and documented. The nature of an institution's collection, its age and size, the number and distribution of staff, the diversity in organization and operational

style - all these variations can lead to different and even incompatible definitions of the same activity.

Even if definitions are similar, few will group the same activity in precisely the same way. One may consider an activity as part of the acquisitions operation, or ignore it altogether, or consider it as part of total overhead cost. These variations are usually based on real operational differences.

Another variation will occur in the overlapping of activity descriptions, e.g. a smaller cataloging unit with few staff may combine activity which in a larger library is formalized into a separate section or department, such as the pre-cataloging searching process. In the smaller unit, the cataloger may do all of his or her own searching. In the larger operation, because of larger volume and division of tasks, there may be a separate pre-cataloging searching unit. If a cost study is attempting to derive a cost for pre-cataloging searching as opposed to searching done for other purposes, then the cataloger in the smaller unit must be able to separate out the time spent for searching which is done to establish the existence of other copies, editions, duplications, etc. from searching which is done, for example, as part of authority work. This separation of activity may be quite difficult to achieve.

In a study of original cataloging costs in isolation from other cataloging activity, it might be debatable if pre-cataloging searching should be included at all, i.e. that part of pre-cataloging searching which is done to establish the existence of available cataloging copy. Some libraries may do that search at the acquisitions stage and not again, or the search may be repeated at the pre-cataloging stage. If again, no copy is found

and original cataloging is required, is that searching a legitimate part of the cost of original cataloging? This is the difficulty of defining precisely and drawing the borders around the scope of the activity to be studied.

Exactly how should one define original cataloging for the purposes of a cost study? The definition and enumeration of tasks in any complex process is tentative at best. And it may be that the inclusion of the relevant cost is more important than its precise placement in one or another activity.

New title, original cataloging implies descriptive cataloging, subject analysis, classification, authority work (i.e. establishing entry forms consistent with the library's catalog, or establishing new entries and providing authorities and cross-references, etc. as needed), typing or preparing a workslip or card for card production, revision of searching, and new searching, supervision, administration. Information on quality of work can also be important, e.g. where continuous checks or revision are part of the activity - whether through the proofing of completed copy itself, or at the filing stage where cards bounce out because of some incompatibility.

Original cataloging need not imply totally original work. Original catalogers may make use of LC copy for descriptive data, but not for entry, classification, subject headings or other secondary entries, if local cataloging policy does not conform to LC practice. Or one may make use of non-LC copy in precisely the same manner - the activity then includes making available cataloging copy conform to local cataloging practice. Modifying available copy in any way may place the work in this category

of original cataloging.

Other activities which can fall within the scope of original cataloging are recataloging and reclassification. Recataloging, particularly with serials materials, when old records are closed and new records for the new title are created, should probably be considered new title cataloging since substantially more effort is involved than with other types of recataloging. Recataloging usually involves replacing a set of records with a new set of records or entries. Reclassification is typically a matter only of changing a call number, often attendant upon changing the location of an item, or it may also include the reclassification of an item from one classification system to another.

Additionally, one may want to distinguish these activities into categories by type of material, i.e. monographs and serials. Monographs can be further distinguished by type, if it is felt that certain types of monographic material are more expensive to catalog than others, e.g. rare book and manuscript cataloging, monograph sets, microform sets. The cataloging activity can also be divided by subject and language if this is felt to be of interest. Is the cataloging of Cyrillic materials more expensive than English language cataloging?

Other relevant activities should be included, roughly defined as catalog maintenance and catalog editing.

Catalog maintenance can include the replacement of worn or mutilated cards, missing cards. It may also include the correction of incorrect entries and changed entries, for example, subject heading changes and the adjustment of work of other staff members arising out of subject or language expertise. All of the above should be included where these require the

professional skills of a cataloger.

Catalog editing can be defined as a somewhat different activity, as those tasks which relate to the establishment and maintenance of authority entries arising out of work with individual titles, such as creating see and see-also references, public scope notes, creating records for an authority file if one is separately maintained. Where a union catalog and satellite department or collection catalogs are also being maintained, the cost of maintaining a record of entries, i.e. determining whether an entry is new to a department catalog and whether it should now receive a set of references may also be included.

Once the scope of activity has been defined and the activity itself has been sub-divided into categories of tasks, materials and other, you want to measure the time it takes to perform the activity, and measuring time usually involves measuring staff time. Other time measurements may be quite relevant if a cost can be attached, e.g. the cost of time lags in processing. Going back to the searching example, if it were not for the time lag which usually occurs between acquisitions searching, order placement, material receipt, and pre-cataloging searching, then some pre-cataloging searching could probably be eliminated entirely. If cataloging copy is available at the time of acquisitions searching, then subsequent search activity need not occur at all.

If the task definitions have been well prepared, then staff should have little problem deciding whether they are spending their time doing one task or another. However, even this has its peculiarities depending on how people like to organize their time, over what time period the study is conducted, and whether one is interested in timing an activity only,

or whether the cost study is to account for all staff time. Some catalogers like to batch their work by activity and will work on several titles at once; others will perform all needed activities on a title-by-title basis. If one is timing the specific activities only, then one kind of cost will emerge; if one is cost-accounting all staff time, then another kind of cost will emerge. For example, in order to derive unit costs, you want to record the time actually devoted to producing the unit of output and to exclude all non-productive time such as breaks, walking, waiting for work, fatigue, etc. If you want to account for the cost of all available staff time, then another approach is taken. The work time is then based on number of paid hours in the year, and the number of productive hours in a year (excluding holidays, vacation, average sick time). Under available or net productive hours, further distinction can be made between time contributing directly to output production, and other time devoted to secondary tasks such as committee meetings, training sessions, course work, etc. You want to decide then, whether you consider the cost of all net productive hours as contributing to output, or whether you want the cost of specific activities alone. If the concern of the study is task-oriented, then you only want time spent in performing the defined task. In summing unit costs for a specific operation you may then average for an average unit cost, or maintain the range of unit cost for the activity. If concern is to account for total costs, then one can establish "standard" time factors to allow for non-productive time. This difference in approach can result in differences in cataloging costs, with average times differing by as much as 8 to 1, and cost varying by as much as 3 to 1. This does not mean that cataloging costs in one situation are 3 times greater than in another; it does mean that costs were measured differently.

For comparative studies, in order to reduce problems of salary differentials, i.e. differences in salary scales between levels of staff, differences in wages for the same level of staff because of seniority, experience, expertise, etc. - all work can be based on man-hours spent on an activity, rather than cost per unit item. Working from number of filled full-time positions, excluding positions unfilled, even though budgeted, a person working full time for six months is a 1/2 FTE, as is the person working half-time for a full year. When a person's activity comprises less than full-time cataloging, e.g. a bibliographer working two days a week cataloging and three days a week in other selection and reference activities, the percent of time spent on cataloging can be expressed as a percentage of a FTE, when FTE has a standard definition. FTE should comprise the total of net productive hours. The point is that the nature of the information produced should provide the most satisfactory support for the purpose of the study.

Again, based on well prepared task definitions, one can measure the output of an activity. For cataloging cost studies, the measure of output is usually title or piece, but more likely title. Of importance here is what should be counted as a title, and when is the count made. The unit cost approach may be based on samples of work done, and the number of titles may well be controlled, i.e. the sample involves recording the time taken to catalog 100 titles, as opposed to a total sample, where each cataloger records both time and title output. What should be counted gets complicated by characteristics of the material itself and the cataloging treatment. Before embarking on a cost study, definitions of what to count should be agreed to and documented. For example, if material is both recataloged and reclassified, should it be counted twice, or only

once, and under which category? Should a recataloged serials title be counted as new cataloging or as recataloging? Should one count a microform set which produces a record for the collective and 25 analytics be counted as 1 new cataloging, or as 26 new cataloging, or once for the set and once for the first analytic, since these reflect two forms of cataloging activity (i.e. the preparation of analytics can be separated out and measured as a type of cataloging activity).

Cost data can be somewhat elusive, because in and of itself it does not provide a justification, but a measure. Choices can arise between priorities to be given to cost-efficiency objectives and performance objectives. The priorities chosen can sometimes lead to quite different solutions. LC's use of superimposition is an example of cataloging practice dictated by economics. Cost analysis can result in significant information to the decision maker. From records of work units and time - one can identify areas for improvement in method; from cost records - the adequacy of staffing arrangements; if procedures cost roughly the same, but one takes longer - then methods should be reviewed; if time is the same, but the cost is greater in one - then staffing and task organization ought to be reviewed. But caution should be exercised in comparing costs. The comparative cost of an activity can agree to the penny - yet the methods used may vary considerably. A procedural change may result in a significantly lower cost element in one area, but this was achieved by shifting the cost to another area, and on balance the total cost is the same. But, if the shift was from savings in personnel costs to added equipment costs, longer-term trends may indicate this to be a real savings.

It would be interesting to know if differences in organization make a difference in cost. Some libraries organize their cataloging by separate

descriptive, subject, and classification units, while others organize their work along subject and language specialties. Some distinguish between original cataloging and cataloging with copy, while others do not. Is it less expensive to withhold material from original cataloging and do repeated searching until cataloging copy becomes available? Would it be cheaper to do brief cataloging rather than full cataloging for certain categories of material without losing bibliographic control? Is it cheaper to purchase analytics for large microform sets, rather than to do one's own cataloging? What is the cost of not following accepted bibliographic standards, and being locked into incompatibility?

The Federal Libraries Committee recently completed a study of federal library usage of the OCLC system, and it shows that the range of costs of using OCLC against former manual systems is higher in some libraries than in others. The reason for the discrepancy, they found, was based on differences in procedure, i.e. some libraries are not making effective use of the system and have added the new cost of the service to the cost of their existing system. Other libraries have effectively integrated the on-line system into their manual operations to effect cost savings over and above the new cost of using the system. That's not just a difference in cost, it's the difference of knowing what to do with the data once you have it.

Heike Kordish
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